

Claim Amendments

Please amend claims 1, 2, 5, 7, 9, 10, 11, 12 and 18 as follows:

1.(currently amended) A method of frequency division multiple access communications wherein a signal indicative of a plurality of information bits are encoded and modulated into a plurality of coded symbols, and the coded symbols are transformed into a further signal in time-domain, said method comprising:

scrambling the time-domain coded symbols ~~for providing to provide~~ to provide a scrambled coded signal; and

appending the scrambled coded signal as redundancy data in a form of a guard interval ~~for providing to provide~~ a data stream with the guard interval for transmission.

2. (currently amended) The method of claim 1, wherein the data stream is received in a receiver and wherein the received data stream is guard interval removed, converted into frequency-domain and equalized ~~for providing to provide~~ an equalized frequency-domain signal, said method further comprising:

converting the equalized frequency-domain signal into a time-domain signal thereby providing an equalized time-domain signal;

descrambling the equalized time-domain signal to provide a descrambled ~~scrambled~~ time domain signal; and

converting the ~~scrambled~~ descrambled time-domain signal into a further ~~scrambled~~ descrambled signal in the frequency domain.

3. (previously presented) The method of claim 1, wherein the coded symbols are transformed into the further signal in the time domain by an inverse fast Fourier transform (IFFT) operation.

4. (previously presented) The method of claim 2, wherein the received data stream is converted into the frequency domain by a fast Fourier transform (FFT) operation.

5. (currently amended) The method of claim 2, wherein the equalized frequency-domain signal is converted into the time domain by an ~~[[IFFT]]~~ inverse fast Fourier transform (IFFT) operation, and the ~~scrambled~~ descrambled time-domain signal is converted into the further ~~scrambled~~ descrambled signal in the frequency domain by ~~an FFT~~ a fast Fourier transform (FFT) operation.

6. (previously presented) The method of claim 1, further comprising
up-converting the data stream with the guard interval at a carrier frequency for transmission over a frequency selective fading channel.

7. (currently amended) A transmitter for use in frequency division multiple access communications wherein a signal indicative of a plurality of information bits are encoded and modulated into a plurality of coded symbols and the coded symbols are transformed into a further signal in time-domain, said transmitter comprising:

a scrambling module, responsive to the further signal, for providing a signal stream indicative of scrambled time-domain ~~scrambled~~ coded symbols; and

an appending module, responsive to the signal stream, for appending the scrambled coded symbols as redundancy data in a form of a guard interval ~~for providing the to provide a~~ data stream with the guard interval for transmission.

8. (previously presented) The transmitter of claim 7, wherein the guard interval has a length which is greater than a maximum delay spread.

9. (currently amended) A receiver for use in a frequency division multiple access communications system, the system having a transmitter which comprises:

means for encoding and modulating a signal indicative of a plurality of information bits into a plurality coded symbols;

means for providing a further signal in time domain indicative of the plurality of coded symbols;

means for scrambling the further signal to provide a scrambled signal;

means for appending the scrambled signal as redundancy data in a form of a guard interval ~~for providing the~~ to provide a data stream with the guard interval for transmission; and

means for transmitting ~~[[a]]~~ the data stream ~~indicative of~~ with the guard-interval signal, wherein the data stream received in the receiver is guard-interval removed, converted into frequency-domain and equalized ~~for providing to provide~~ an equalized frequency-domain signal, said receiver comprising:

a first module for converting the equalized ~~frequency-domain~~ frequency-domain signal to an equalized time-domain signal;

a second module for descrambling the equalized time-domain signal to provide a descrambled ~~scrambled~~ time-domain signal; and

a third module for converting the ~~scrambled~~ descrambled time-domain signal into a further descrambled ~~scrambled~~ signal in the frequency domain.

10. (currently amended) The receiver of claim 9, wherein the data stream received in the receiver is guard-interval removed, converted into the frequency-domain and then equalized ~~for providing an equalized frequency-domain signal~~ by a one-tap channel equalizer to provide an equalized frequency-domain signal.

11. (currently amended) The receiver of claim 9, wherein the first module comprises an inverse Fourier transform operation for converting the equalized frequency-domain signal to the equalized time-domain signal, and the third module comprises a Fourier transform operation for converting the ~~scrambled~~ descrambled time-domain signal to the further ~~scrambled~~ descrambled signal in the frequency domain.

12. (currently amended) A frequency division multiple access communications system, comprising:

a transmitter including:

a first module for encoding and modulating a signal indicative of a plurality of information bits into a plurality coded symbols to provide a further signal indicative of the plurality of coded symbols;

a second module for converting the coded symbols into frequency-division multiplexed symbols in time-domain;

a third module for scrambling the frequency-division multiplexed symbols in time domain to provide a scrambled signal,

a fourth module for appending the scrambled signal as redundancy data in a form of a guard interval ~~for providing the~~ to provide a data stream with the guard interval for transmission, and

a fifth module for transmitting ~~[[a]] the data stream indicative of~~ with the guard-interval signal; and

a receiver for receiving a data stream, the receiver including:

a first module for removing the ~~[[guard-interval]]~~ guard interval in the data stream ~~for~~ to provide a guard-interval removed signal;

a second module for converting the guard-interval removed signal into a frequency-domain signal;

a third module for equalizing the frequency-domain signal to provide an equalized frequency-domain signal;

a fourth module for converting the equalized frequency-domain signal into an equalized time-domain signal;

a fifth module for descrambling the equalized time-domain signal to provide a ~~scrambled~~ descrambled time-domain signal; and

a sixth module for converting the ~~scrambled~~ descrambled time-domain signal into a further ~~scrambled~~ descrambled signal in frequency domain.

13. (original) The communications system of claim 12, comprising a wireless local area network (WLAN).

14. (original) The communications system of claim 12, comprising a cellular orthogonal frequency division multiplexing (OFDM) system.

15.(currently amended) The communications system of claim 12, comprising a multi-carrier ~~[[CDMA]]~~ code division multiple access (CDMA) system.

16. (original) The communications system of claim 12, comprising a digital subscriber line (DSL) system.

17. (original) The communication system of claim 12, comprising a digital broadcasting system.

18. (currently amended) A component in a frequency division multiple access communications system, comprising:

a transceiver operatively connected to an antenna, the transceiver comprising:

a transmitter including:

a first module for encoding and modulating a signal indicative of a plurality of information bits into a plurality coded symbols to provide a further signal indicative of the plurality of coded symbols,

a second module for converting the coded symbols into frequency-division multiplexed symbols in time-domain;

a third module for scrambling the frequency-division multiplexed symbols in a time domain to provide a scrambled signal,

a fourth module for appending the scrambled signal as redundancy data in a form of a guard interval ~~for providing the~~ to provide a data stream with the guard interval for transmission, and

a fifth module for transmitting ~~[[a]] the data stream indicative of~~ with the guard-interval signal; and

a receiver for receiving a data stream via the antenna, the receiver including:

a first module for removing the ~~[[guard-interval]]~~ guard interval in the data stream to provide a guard-interval removed signal;

a second module for converting the guard-interval removed signal into a frequency-domain signal;

a third module for equalizing the frequency-domain signal to provide an equalized frequency-domain signal;

a fourth module for converting the equalized frequency-domain signal into an equalized time-domain signal;

a fifth module for descrambling the equalized time-domain signal to provide for providing a scrambled descrambled time-domain signal; and

a sixth module for converting the ~~scrambled~~ descrambled time-domain signal into a further ~~scrambled~~ descrambled signal in a frequency domain.

19. (original) The component of claim 18, comprising a user equipment (UE).

20. (original) The component of claim 18, comprising a mobile terminal.